

ABSTRACT OF THE DISCLOSURE

A method for reworking a ball grid array (BGA) of solder balls including one or more defective solder balls on an electronic component workpiece using a single-ball extractor/placer apparatus having a heatable capillary tube pickup head optionally augmented with vacuum suction. A defective solder ball is identified, extracted by the pickup head and disposed of. A nondefective solder ball is picked up by the pickup head, positioned on the vacated attachment site, and thermally softened for attachment to the workpiece. Flux may be first applied to the replacement solder ball or to the vacated attachment site. The extractor/placer apparatus may be automated to locate, extract and replace defective balls for completion of a fully operable BGA.

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